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AUTHOR Morphew, Christopher C.; Baker, Bruce D.
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ABSTRACT

This study examined the administrative expenditures of a group of universities, the Research I Universities (RU1) (the designation of the Carnegie classification scheme before 2000), the most comprehensive and research-intensive universities in the United States. The study explored the expenditure patterns of universities new to the RU1 classification as of 1994, determining whether they spent more on institutional support in 1996 than they did in 1988, and whether the spending patterns of the new RU1s of 1994 became more similar to those of continuing RU1s from 1994. The analysis considers the presence of an administrative lattice that grows as faculty move away from teaching, advising, and shared governance to a focus on specialized areas of research. Data for the study are from the Integrated Postsecondary Education System finance files. Findings suggest that the expenditure patterns of the new RU1s closely resembled those of the continuing RU1s. Differences in expenditure patterns were usually the result of public/private distinctions or a function of revenue differences. However, using panel data from 1988, 1992, and 1996, new RU1s increased their institutional support shares relative to the increases at continuing RU1s, a finding consistent with predictions. There is evidence that the new public RU1s exhibited a strong relationship between revenues and institutional support in 1988 because they were in a process of acceleration toward RU1 status. Two appendixes contain graphs of the institutional support of the RU1s. (Contains 4 tables, 2 figures, and 23 references.) (SLD)

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The Administrative Lattice and the New Research I Universities

Christopher C. Morphew
Teaching and Leadership
421 Joseph R. Pearson Hall
1122 West Campus Road
University of Kansas
Lawrence, KS 66045
785.864.9845
morphew@ku.edu

Bruce D. Baker
University of Kansas

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Introduction

Rising administrative costs at colleges and universities around the U.S. have received significant attention because of the perception that costs incurred for central administrators' salaries necessarily reduce the amount of monies available for instruction and student services. In fact, there are numerous reports that document the significant rise in central administrators' salaries and the share of institutional expenditures being devoted to institutional support during the 1980s, 1990s and 2000 (Bergmann, 1991; Haltstead, 1991; Middaugh & Hollowell, 1992; Kellogg, 2001; McPherson & Schapiro, 1990).

This research paper examines the administrative expenditures of a particular group of universities, namely Research I Universities (RU1s).[1] These institutions have been chosen for several reasons. First, they represent the most comprehensive and research-intensive group of postsecondary institutions in the U.S. Therefore, we might expect these institutions to be more likely than others to suffer the true costs of conducting research. Second, this group of institutions includes most of the prestigious public and private universities in the U.S. and are likely viewed as the model for aspirational institutions. Finally – and related to the second point – this group of institutions was

[1] We recognize and acknowledge that the 2000 Carnegie re-classification eliminated the RU1 category in favor of a broader "doctoral extensive" classification with a much broader definition and, as a result, a much larger number of universities. We have chosen to use the RU1 category because it most accurately captures the institutional type with which we are concerned.

enlarged sigificantly as a result of the 1994 Carnegie re-classification. The 1994 re-classification showed, for example, that the number of RU1s increased from 70 to 88 since 1987. This increase is the largest (in both number and percentage terms) since the Carnegie Classification model was adopted in 1970. The increase in the number of RU1s may be the product of several trends, including increased competition for federal funds as a means of counteracting reduced state appropriations for higher education (see e.g., Winston & Zimmerman, 2000) or the increased use of technology transfer by universities eager to engage in this sometimes lucrative practice. Or, perhaps as likely, the increase in the number of RU1s is symptomatic of universities' continued attempts to emulate the most prestigious postsecondary models (Aldersley, 1985; Birnbaum, 1983).

This study explores the expenditure patterns of those universities new to the RU1 classification as of 1994. First, the study analyzes whether these new RU1s spent significantly more on institutional support – as a share of their expenditures – in 1996 than they did in 1988. Second, the study assesses whether the spending patterns of the new RU1s became more similar to those of the continuing RU1s between 1988 and 1996. We hypothesize that the new RU1s – as a result of their aspirations to secure additional federal funding and achieve RU1 status – have changed their expenditure patterns in order to respond to the increased administrative costs that often accompany new efforts to secure federal funding. This hypothesis and study build upon Zemsky and Massy's (1990) concept of the "administrative lattice," a concept that promotes the idea that

administrative costs grow as faculty move away from their traditional advising duties in favor of more emphasis on research. The study also uses an institutional theory proposition describing "mimetic isomorphism" to explain how and why organizations operating within uncertain environments model themselves and their structures after those perceived as being more successful (DiMaggio & Powell, 1983). The discussion of the administrative lattice concept draws heavily from the work of Ehrenberg (2000) and Clotfelter (1996), both of whom have published critiques of the true costs associated with the procurement and administration of external funds.[2] The administrative lattice and institutional theory frameworks will both be used to construct hypotheses that predict that universities aspiring to RU1 status would experience increased administrative costs as a percentage of their total expenditures.

Background and importance of study

It is common for colleges and universities to aspire to a "higher" Carnegie Classification, because of the status accorded institutions at the top of this scale. Moreover, upon reaching a new classification, institutions often trumpet this news to the world as evidence of their improvement in quality and reputation. Several of the universities that attained RU1 status in the 1994 re-classification (e.g., Iowa State University, The University of Kansas) explicitly included attaining RU1 status within

[2] In our use of the combination of the administrative lattice and institutional theory, we borrow (as suggested) from the work of Leslie and Rhoades (1995).

their strategic plans. Typically, universities strive for RU1 status via the same vehicles they saw more successful research universities using (e.g., focus on technology transfer; the establishment of research centers, etc.). As a result, there is more institutional emphasis placed on faculty members' research productivity, particularly those research products that may attract outside funding.

Though the Carnegie Classification was not created for the purpose of ranking postsecondary institutions, it has served a prestige function for many institutions because it examines variables linked to normative models of prestige and stature (e.g., federal research dollars, selectivity, number of doctorates awarded). Indeed, Carnegie has restructured its Classification for 2000 in the hopes of reducing the "tournament mentality" associated with the Classification. At the "top" of the current Classification are the Research I Universities that award more than 50 doctorates annually and receive more than $40 million in federal funding for research. Many larger, comprehensive universities aspire to this status because of the prestige accorded these institutions. However, if they are to reach this classification level, they must find ways of increasing the amount of federal funding they receive for research, as this is the sticking point for differentiating between most RU2s and RU1s.

These aspirations result of a kind of "academic drift," where colleges and universities abandon or greatly extend their historic missions. Studies of academic drift document the phenomenon whereby higher education institutions model themselves after more

comprehensive, prestigious institutions (Huisman, 1995; Neave, 1979; Huisman & Morphew, 1997; Morphew & Jenniskens, 2000). These studies are not new in concept: the notion of and problems associated with the pursuance of the research university model have been identified earlier by scholars (Merton, 1968; Birnbaum, 1983; Riesman, 1956).

Pursuing goals like RU1 status, these studies suggest, may produce unintended consequences for these institutions. For example, Alpert's (1985) research on the research university model illustrates the tension that exists between its graduate and undergraduate functions. His research suggests that as universities become more dependent on external sources of support (e.g., research funding), they will change their internal expenditure patterns to emphasize their functions that correspond with these sources of support (e.g., graduate education and the administration of research) while de-emphasizing other functions such as instruction. This, of course, could lead to decreases in the quality of teaching and student advising, and require faculty to shift their attention away from traditional teaching and service functions in favor of research.

Research on institutions in these kinds of transitions highlights some of the inherent problems. For example, Henderson and Kane's (1991) study of universities that have pursued more prestigious status indicates that there may be negative consequences for faculty members, especially for faculty whose interests and background do not coincide with their institutions' aspirations. Finally, research that has examined the elimination of

degree programs in research universities depicts how these institutions (particularly those engaged in explicit attempts to boost their prestige) are more likely to target for elimination those degree programs and services less likely to receive research-based funding and those primarily associated with undergraduate education (Gumport, 1993; Morphew, 2000; Slaughter, 1994).

Our study builds on these earlier studies and incorporates several conceptual frameworks, including Zemsky and Massy's (1990) "administrative lattice," and DiMaggio and Powell's (1983) "mimetic isomorphism" to construct a model that tests whether universities new to the RU1 Classification as of 1994 show evidence of spending patterns that emphasize administrative spending and de-emphasize instructional programs and services. Using these frameworks and the findings from other relevant research discussed above, we expect that universities new to RU1 status as of 1994 will exhibit these expenditure patterms.

Conceptual Framework

Zemsky and Massy's (1990) concept of an administrative lattice and DiMaggio and Powell's (1983) notion of mimetic isomorphism are explained and applied below. In both cases, we attempt to connect the conceptual framework provided by these scholars to a prediction about the administrative costs incurred by universities that seek out greater external funding.

The administrative lattice

The concept of the administrative lattice conjures up images of a bureaucratic jungle, dense with administrators and their offices. Better bring your machete. This lattice, according to Zemsky and Massy (1990), threatens higher education because it grows and grows "in response to an environment and micromanagement, of administration becoming a goal in itself, and of a commitment to consensus management" (p. 19). The administrative lattice grows as faculty move away from a teaching, advising, and shared governance role to focus on specialized areas of research.

Where would we expect the administrative lattice to appear most often? Well, according to Zemsky and Massy's (1990) description of the role played in its production by the academic ratchet, research universities are a good place to start (Zemsky, 1990). After all, this is where academic specialization is most often found. Consistent with this reality, recent critical works by two economists point to the real costs that appear when an institution and its faculty focus primarily on research. Ehrenberg (2000) and Clotfelter (1996), in separate books, apply an economist's lens to the study of how universities work. In the process, both provide grist for Zemsky and Massy's mill and provide illustrative evidence that aspiring to RU1 status may be a costly proposition.

Ehrenberg's (2000) cogent analysis of why the elite universities are incapable of cutting costs (and therefore tuition) provides lessons for those who want to understand more about how the rush to secure external funding may not be as profitable as expected,

given the costs incurred, both real and in opportunity. The indirect costs charged by universities doing federally-funded research are a perfect example. Ehrenberg relates a story about how, in order to stay stay competitive, Cornell University felt the need to build a new research facility, one that would attract the best and brightest faculty and allow them to compete for federal research funding. Although it was hoped that the projected $40 million building would attract research funding, it quickly became clear that, even at Cornell, indirect costs would, at best, pay for only one-third the cost of operating the building. As a result, a major development campaign was initiated and donors were invited to endow a maintenance fund to allow Cornell to operate the building. While Cornell was successful in raising this money, Ehrenberg rightly points out "Inevitably then, this new building will compete for funds with new faculty positions, additional supports for graduate students, and higher faculty salaries" (p. 106).

One lesson from this story and the other narratives provided by Ehrenberg is simple and straightforward: the costs of running a research university are many and often undiscovered until they become overwhelming. Moreover, attracting and securing federal funding for research may not always pay for itself in terms of the facilities and capital costs required, not to mention the need to pay better faculty salaries and attract the best graduate students. The academic ratcheting that Ehrenberg describes in much of his book results in significant administrative costs. For example, the decentralized administrative model that caters to faculty members' specialized interests does not allow

a central administrator the opportunity to work to hold down costs. Rather, it increases the chances that duplicative programs and administrative units, as well as inefficient behavior in each of the autonomous units.

Clotfelter (1996) builds upon foundation of the administrative lattice in his study of the revenues and expenditure patterns at several of the nation's elite colleges and universities. He notes that administrative staff costs, though not occupying as large a role in institutional expenditures as faculty salaries, grew at a much faster rate than faculty salaries during the early part of the 1990s. He muses that this growth in administrative staff might be linked to the professionalization of this group or to the increasing complexity of their task. This is similar in some ways to Ehrenberg's (2000) discussion of the decentralized academic model and its inefficient mannerisms. Both authors, for example, point out that research universities have developed increasingly complex relationships with external agencies. These relationships require expertise and specialization on the part of university administrators. Interestingly, however, Clotfelter's research points out that the largest annual rates of increase for administrative staff at Harvard, Duke, and the University of Chicago during his study period was in the arena of sponsored research.

Mimetic isomorphism in higher education

The tendency of specific organizational forms and types to dominate the higher education market can be seen clearly in institutions' attempts to depict themselves as the

"Harvard of the Plains" or to attain Research I University status. Why does this occur in higher education? DiMaggio and Powell (1983) provide several theoretical propositions that can help. One of these proposition holds that, in certain fields where it is difficult to determine the quality of the goods produced or the technology applied, organizations and their leaders are better off modeling themselves after what they perceive as the most successful organizations of their type. As a result of this kind of mimicry, a phenomenon these researchers refer to as "mimetic isomorphism" takes place and organizations appear to be more similar to one another than dissimilar.

If we apply DiMaggio and Powell's (1983) concept to higher education, it may help us to understand the proliferation of administrative positions and the growth in administrative costs incurred at comprehensive universities striving to become research universities. Certainly in higher education, we have an example of an "industry" experiencing great uncertainty with regard to production techniques and the quality of outputs. As a result, we might expect to see examples of the kind of mimicry that DiMaggio and Powell conceive of, and that this mimicry might spill over to the administrative side of the organization as well as the technical side. For example, it might be argued that not only does the administrative lattice produce greater numbers of administrative positions, but the existence of these administrative positions and the professionalization of each administrative position at the most elite universities (as

described in Clotfelter (1996) and Ehrenberg (20000)), may lead aspirational institutions to adopt these practices as a means of modeling the successful institutions' success.

If this kind of modeling phenomenon took place, universities that strategically sought federal research dollars and the status that went with becoming a RU1 would look to the most elite institutions and their structures and practices as the means to becoming more successful. Judging from what Ehrenberg (2000) and Clotfelter (1996) found in their examinations of these elite institutions, aspirational RU1s might be expected to decentralize their administrative structures, add administrative staff for the purpose of attracting sponsored research, and professionalize their administrative staffs. This would, as a result, siphon off monies from other institutional ventures, unless new sources of funds could be identified to fund this administrative growth. Unfortunately, as Ehrenberg pointed out, the costs of participating in the sponsored research competition are many and, even if institutions are successful in raising money, this success may ultimately lead to the need to raise greater sums to cover the accompanying administrative costs.

If we apply the concepts discussed above to generate a hypothesis about what kinds of administrative expenditure patterns we might expect in new RU1s,. we arrive at the following:

H1: New RU1s, compared with continuing RU1s, spent a greater share of their expenditures on administrative costs in 1996 relative to what they spent in 1988 (after controlling for important institutional differences).

H2: New RU1s expenditure patterns in 1996 closely resemble the expenditure patterns of continuing RU1s in 1996.

Study methods

Our goal in this study is to explore whether the new RU1s had succumbed to the pressures identified above. Toward this end, we used data from the Integrated Postsecondary Datasets (IPEDS) Finance files to construct three separate models that will help us to compare the expenditure patterns of 1994 RU1s in 1996 and 1988.

Dependent variables in the models include the percent of total revenues expended on (a) institutional support salaries, (b) instructional salaries and (c) research salaries. Independent variables included (a) the natural log of total revenues, (b) the percent of revenues that were restricted, (c) whether the institution was a new, or continuous Research I University and (d) control (public or private).

The first model employs the panel data set, which includes data from 1988, 1992 and 1996. Budget shares are modeled as a function of total revenues, percent restricted revenues, control (public or private), and change (new or continuing RU1). A dummy variable is included for the year, such that the estimates on other independent variables represent differences between institutions across all years. The model is estimated with robust standard errors to account for the lack of independence among each set of three observations on a given institution.

$$\mathbf{Share}_{it} = \alpha + \beta_1\mathbf{lnTrev}_{it} + \beta_2\mathbf{Prrev}_{it} + \beta_3\mathbf{Control}_i + \beta_4\mathbf{Change}_i + \mathbf{Year}_t + e_{it} \quad (1)$$

for each institution *i* in year *t* and with the error term *e*.

The second model applies random-effects GLS (Generalized Least Squares) estimation to accomplish essentially a similar objective to the dummy variable model. As with the dummy variable model, the random effects model assesses the differences between institutions over time.

$$\mathbf{Share}_{it} = \alpha + \beta_1\mathbf{lnTrev}_{it} + \beta_2\mathbf{Prrev}_{it} + \beta_3\mathbf{Control}_i + \beta_4\mathbf{Change}_i + u_i + e_{it} \qquad (2)$$

for each institution *i* in year *t* and with the error terms *u*, representing the errors among cross-sectional units and *e*, representing the errors for each cross-sectional unit at each point in time.

The third model isolates the between-effects, or the differences in mean shares of resources allocated to institutional support, instruction and research across institutions. This model takes the same basic form as the random-effects model (1) but estimates only differences between mean levels for each institution.

The final model assesses changes in shares over time, with respect to changes in total revenues, restricted revenues and status as a public or private institution and as a new or continuing Research I University. Change is estimated using 1996 and 1988 data only.

$$(\mathbf{Share}_{it} - \mathbf{Share}_{it-8}) = \alpha + \beta_1 \ln(\mathbf{Trev}_{it} - \mathbf{Trev}_{it-8}) + \beta_2(\mathbf{Prrev}_{it} - \mathbf{Prrev}_{it-8}) + \beta_3\mathbf{Control}_i + \beta_4\mathbf{Change}_i + e_i \quad (3)$$

where t = 1996 and t – 8 = 1988 and *e* is the error term.

Findings

Table 1 displays the findings of the dummy variable model of between institution differences in institutional support, instructional and research salary shares. Major findings are that public Research I Universities tend to have lower institutional support shares across institutions, controlling for year. Also, institutions that recently obtained RU1 status tend to have slightly higher, though marginally significant ($p<.10$), institutional support shares.

Regarding instructional salary shares, institutions recently obtaining RU1 status tend to have slightly higher instructional salary shares than continuous RU1s, though this is marginally significant ($p<.10$). Institutions with higher total revenues tend to have slightly higher instructional salary shares. Institutions with higher shares of restricted revenues tend to have lower instructional salary shares and from year to year, instructional salary shares tend to be lower.

Finally, regarding research salary shares, new RU1s tend to have lower research salary shares than continuous RU1s. Institutions with higher total revenue tend to have lower research salary shares. Institutions with more restricted revenue tend to have higher

research salary shares, and from year to year, research salary shares appear to be increasing.

Table 1. Dummy Variable Model

	Institutional Support Salary Share			**Instructional Salary Share**			**Research Salary Share**		
Variable	Estimate (RSE)			Estimate (RSE)			Estimate (RSE)		
Change	.013	.007	*	.044	.023	*	-.076	.023	***
Control	-.040	.008	***	-.019	.024		.024	.020	
Log of total revenue	.001	.006		.073	.028	**	-.058	.031	*
Percent restricted	-.022	.023		-.169	.069	**	.240	.068	***
Year	.000	.001		-.005	.002	**	.004	.002	**
Constant	.108	1.09		9.21	3.41	***	-7.47	3.20	**
	$R^2 = .26$			$R^2 = .20$			$R^2 = .33$		

n = 259 in 88 clusters
*p≤.10; **p≤.01; ***p≤.001

Table 2 displays the results of the random effects model. For the most part, this analysis confirms the findings of the dummy variable model, though producing fewer statistically significant effects. The only significant effect for new RU1s is that, as previously noted, the new RU1s tend to spend smaller shares than continuing RU1s on research salaries. Unlike the dummy model, total revenues appear unassociated with instructional and research salaries, but restricted revenues retain their negative association with instructional salaries and positive association with research salaries.

Table 2. Random Effects (Mixed) Model

	Institutional Support Salary Share			Instructional Salary Share			Research Salary Share		
Variable	Estimate (SE)			Estimate (SE)			Estimate (SE)		
Change	.012	.008		.015	.024		-.053	.021	**
Control	-.039	.007	***	-.028	.021		.021	.018	
Log of total revenue	-.000	.004		.014	.010		-.002	.008	
Percent restricted	-.017	.017		-.211	.043	***	.186	.035	***
Constant	.129	.080		.244	.195		.218	.157	
	R^2 (between) = .29			R^2 (between) = .12			R^2 (between) = .24		
	R^2 (overall) = .26			R^2 (overall) = .11			R^2 (overall) = .23		

*p≤.10; **p≤.01; ***p≤.001

Estimates for the third model, the between-effects model, are displayed in Table 3. Coefficients of determination for the between effects model are a clear indication that for each budget share, a far greater portion of the variance between institutions than the variance within institutions over time is explainable by the available independent variables. Again, private RU1s tend to allocate less to institutional support and new RU1s tend to allocate less to research. Consistent with the first model, higher revenues are associated with higher instructional shares and lower research shares and consistent with both previous models, more restricted revenues are associated with lower instructional shares and higher research salary shares.

Table 3. Between-Effects Model

	Institutional Support Salary Share			Instructional Salary Share			Research Salary Share		
Variable	Estimate (SE)			Estimate (SE)			Estimate (SE)		
Change	.012	.008		.045	.025	*	-.074	.021	***
Control	-.040	.007	***	-.018	.021		.024	.018	
Log of total revenue	.001	.006		.073	.019	***	-.059	.016	***
Percent restricted	-.025	.023		-.169	.070	**	.258	.059	***
Constant	.109	.129		-.980	.386	**	1.34	.328	***
	R^2 (within) = .00			R^2 (within) = .01			R^2 (within) = .01		
	R^2 (between) = .29			R^2 (between) = .21			R^2 (between) = .35		
	R^2 (overall) = .26			R^2 (overall) = .18			R^2 (overall) = .30		

*p≤.10; **p≤.01; ***p≤.001

Estimates for the final model, the change model, are displayed in Table 4. Despite our hypothesis that new RU1s would increase their institutional support expenditure shares (either by cause or effect), there appears to be no relation between being among these institutions and experiencing higher rates of increase to institutional support salaries, at least as shown in Table 4. Further, there is no evidence that these institutions increased or decreased shares to instruction or salary differently than continuing RU1s.

Table 4 does indicate that institutions that experienced greater growth in total revenues tended also to experience greater growth in institutional support expenditures. Institutions that experienced greater growth in restricted revenues tended to experience reductions in instructional shares and increases in research shares.

Table 4. Change Model

	Institutional Support Salary Share			Instructional Salary Share			Research Salary Share		
Variable	Estimate (SE)			Estimate (SE)			Estimate (SE)		
Change	-.007	.009		-.007	.023		-.008	.016	
Control	.004	.007		-.026	.020		.030	.013	**
Log of total revenue	-.013	.005	**	-.017	.014		.015	.010	
Percent restricted	-.004	.036		-.273	.097	***	.179	.065	***
Constant	.247	.106		.366	.285		-.293	.191	
	R^2 = .07			R^2 = .12			R^2 = .16		
	Adj. R^2 = .03			Adj. R^2 = .08			Adj. R^2 = .12		

*p≤.10; **p≤.01; ***p≤.001

Discussion

There is some support for our hypotheses, especially H2, in Tables 1-3. That is, it appears from our analysis that the expenditure patterns of new RU1s closely resemble the expenditure patterns of continuing RU1s. Particularly in the cases of Table 2 and 3, differences in expenditure patterns within the larger group of RU1s were the result of public versus private distinctions or a function of revenue differences. Only in the case of Table 1 was there some support for our first hypothesis. Table 1 indicates that, using the panel data set from 1988, 1992 and 1996, new RU1s increased their institutional support shares relative to the increases incurred at continuing RU1s. This is consistent with what we predicted in H1.

However, several of the other findings documented in Tables 1-3 were difficult to explain given our hypotheses. For example, we wondered why it is that public RU1s tended to have lower institutional support shares than other RU1s (see Tables 1 and 2). Certainly this finding might be explained by pointing out that private universities generally have a larger administrative infrastructure and have traditionally spent more on administrative costs than their public peers (Ehrenberg, 2000; McPherson & Schapiro, 1990). But given the fact that most of the new RU1s as of 1994 were public (14 of 18), we thought there might be something more to it, something representative of the entire new RU1 group perhaps.

In an effort to better understand this finding, we constructed scatterplots that illustrated the relationship between revenues and institutional support (salaries) for each of the 88 RU1s in 1988 and 1996. These scatterplots can be found in Appendices A & B following this discussion. At first glance, the scatterplots don't seem to indicate much, except that public universities tend to reside on the low portion of the x axis (log of total revenue). However, if trendlines are included on the scatterplots (as they are in the Appendices), one can see that the new public RU1s show a distinctive relationship between revenues and percent of institutional support (salaries) for the 1988 data. While the other three subgroups of RU1s in the scatterplots exhibit nearly flat trendlines in both 1988 and 1996, the new public RU1s show a strong positive correlational relationship between revenues and institutional support in 1988 alone.

What does this mean? It shows that there is a stronger direct relationship between revenues and administrative costs in 1988 for these institutions as compared to the other RU1s in 1988 and 1996. That is, for new public RU1s in 1988, the share of expenditures devoted to institutional support (salaries) increased almost in concert with increased revenues. This relationship then leveled off for 1996 and became similar to those of the other RU1 subgroups. This is especially interesting because of the fact that many of the new RU1s made a strategic point out of obtaining RU1 status in 1994 and the 1994 re-classification used 1988-1991 data on degrees awarded and federal support.

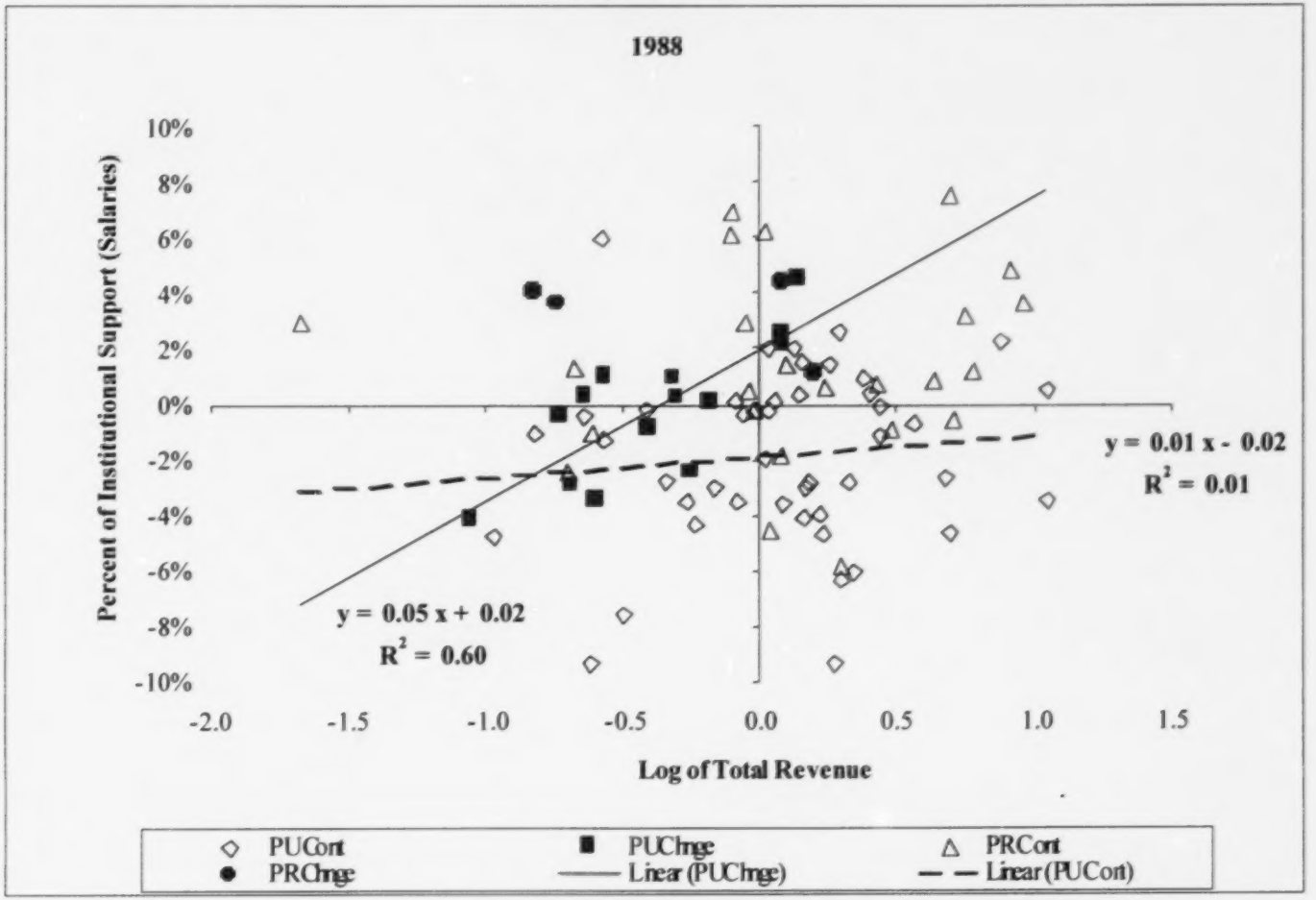
If we can speculate, then, on the reasons why the new public RU1s exhibited this strong relationship between revenues and institutional support in 1988, we would suggest that this relationship occurred as a result of public RU1s "accelerating" toward RU1 status. That is, we would hypothesize that the 1988 data exhibited in Appendix A captures the expenditure patterns that emerged among this subgroup as many of its universities were making a conscious effort to rise to a higher Carnegie status. During the late 1980s and early 1990s, we surmise, these institutions spent a greater share of their institutional expenditures on institutional support as a means toward the end of becoming RU1s. These institutional support expenditures most likely were aimed toward building the kind of administrative structures present in continuing RU1s (e.g., research centers, sponsored funding offices, etc.).

Support for this hypothesis can also be found in Appendix B, which documents the fact that the trendline for the 1996 data for the new public RU1s flattened out because (average and median) total revenue increased and institutional support remained virtually the same in 1996 as 1988. This supports the acceleration hypothesis discussed above: the 1988 data is indicative of a growth in the share of expenditures devoted to institutional support, perhaps as a means of increasing institutional revenue from federally funded research. We would expect this acceleration to be more likely among public universities than privates because – see discussion above –public universities have traditionally had leaner administrative infrastructures and devoted a smaller share of expenditures toward institutional support.

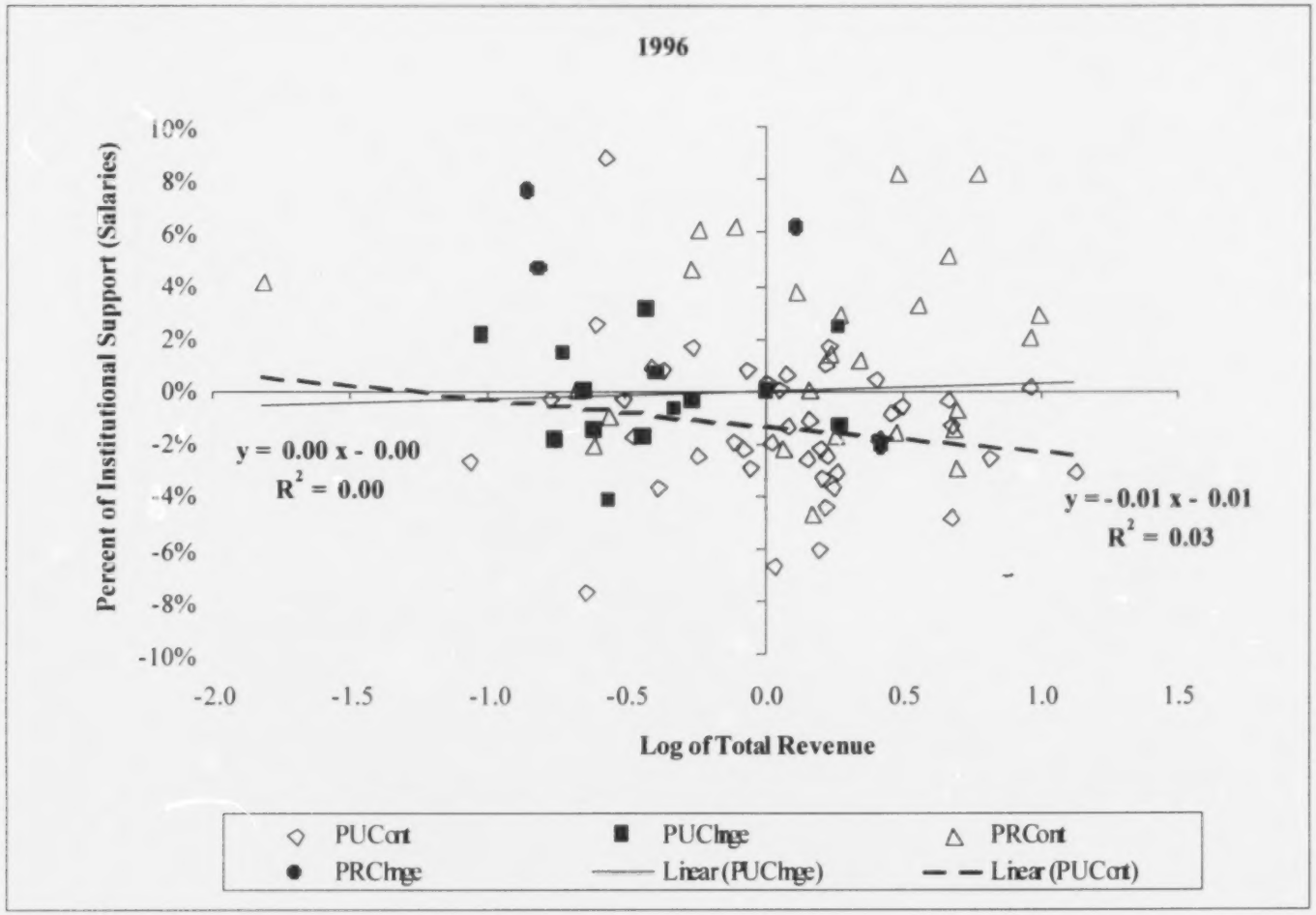
We do acknowledge, of course, that our hypothesis as to the meaning of the findings is only one interpretation and explanation. Nevertheless, it is an interpretation consistent with the conceptual frameworks discussed above and one that can be tested more thoroughly. For example, we would suggest using data that allow the researcher to use revenue from sponsored funding rather than total revenue. Total revenue may include other sources of revenue unrelated to sponsored research, including hospital revenues and endowment income, for example. The IPEDS finance data does breakdown revenue by source and it would be possible to compare institutional support with revenue from only federal grants and contracts.

Finally, given the premise of this paper, it is important to note that even though there is some evidence that the new RU1s increased the share of their expenditures for institutional support, there is no evidence that this emphasis decreased the amount this subgroup of institutions spent on instructional expenditures. This is particulary interesting, given the usual premise that increased spending on administration is associated with decreased spending on traditional instructional areas.

Appendix A: Percentage of Institutional Support (Salaries) by Total Revenue (log) for all RU1s as of 1988. With trendlines for public RU1s.



Appendix B: Percentage of Institutional Support (Salaries) by Total Revenue (log) for all RU1s as of 1996. With trendlines for public RU1s.



References

Aldersley, S.F. (1995). "Upward Drift" is Alive and Well. *Change,* September/October, pp. 51-55.

Alpert, D. (1985). Performance and paralysis: the organizational context of the American research university. *Journal of Higher Education, 56*(3).

Bergmann, B.R. (1991). Bloated administration: blighted campuses. *Academy, 77,* November/December, 12-16.

Brinkman, P.T. (1992). Factors that influence costs in higher education. *New Directions for Institutional Research, 75.*

Clotfelter, C.T. (1996). *Buying the Best: Cost Escalation in Higher Education.* Princeton: Princeton University Press.

Ehrenberg, R.G.(2000). *Tuition Rising: Why College Costs So Much.* Cambridge: Harvard University Press.

Gumport, P.J. (1993). The contested terrain of academic program reduction. *Journal of Higher Education.* May/June.

Halstead, K. (1991). *Higher Education Revenues and Expenditures.* Washington, DC: Research Associates.

Henderson, B.B. & Kane, W.D. (1991). Caught in the middle: faculty and institutional status and quality in state comprehensive universities. *Higher Education,* 22, 339-350.

Kellogg, A.P. (2001, March 16). Salaries for college administrators increase by 4.8%. *Chronicle of Higher Education,* A33.

Leslie, L.L. & Rhoades, G. (1995). Rising administrative costs: seeking explanations. *Journal of Higher Education, 66*(2), 187-212.

Lively, K. (1999, November 5). Changes planned for Carnegie Classifications. *Chronicle of Higher Education.*

Merton, R. K. (1968). The matthew effect in science. *Science,* 159, 56-63.

McPherson, M.S. & Schapiro, M.O. (1990). Expenditure patterns and trends in U.S. higher education: implications for quality. Discussion paper no. 5, Williams Project on the Economics of Higher Education, Williams College, Williamstown, Massachusetts.

Middaugh, M.F. & Hollowell, D.E. (1992). Examining academic and administrative productivity measures. *New Directions for Institutional Research,* 75, 61-75.

Morphew, C.C. & Jenniskens, C.G.M. (1999). Assessing institutional change at the level of the faculty: examining faculty motivators and new degree programmes. In B. Jongbloed, P. Maassen & G. Neave (Eds.), *From the Eye of the Storm: Higher Education's Changing Institution.* Dordrecht, The Netherlands: Kluwer Academic Publishers.

Morphew, C.C. (2000). The realities of strategic planning: program termination at East Central University. *Review of Higher Education, 23*(3), 257-280.

Riesman, D. (1956). *Constraint and Variety in American Education.* Lincoln: University of Nebraska Press.

Slaughter, S. (1994). Academic freedom at the end of the century. In P.G. Altbach, R.O. Berdahl and P.J. Gumport (Eds.). *Higher Education in American Society.* Amherst, NY: Prometheus.

Stanley, E.C. & Adams, J.W. (1994). Analyzing administrative costs and structures. *Research in Higher Education, 35*(1), 125-140.

Winston, G.C. & Zimmerman, D.J. (2000). Where is aggressive price competition taking higher education? *Change, 32*(4), 10-19.

Zemsky, R. (1990). The lattice and the ratchet. *Policy Perspectives, 2*(4).

Zemsky, R. & Massy, W. (1990). Cost containment: committing to a new reality. *Change, 22*(6), 16-22.